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A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

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Dear Sir:

Plutonium production reactor now under construction at Hanford Works, Richland, Wash., will be dual-purpose. Decision has been made to utilize it for generating 700,000 kw of electricity, concept opposed by Eisenhower Administration. Generated power would be distributed in the northwest by the Bonneville Power Administration, the Federal power system in that area. Present construction schedules call for the reactor to be completed late in 1962 and the power plant some two years later.....In another reversal of previous government policy, the Kennedy Administration has decided to continue two technical approaches in the nuclear aircraft development program: the General Electric direct cycle system, and the indirect cycle reactor concept of Pratt & Whitney division of United Aircraft Corp. (Decision will be incorporated in the revised USAEC budget which the President will send to Congress next week.) (Other RESEARCH PROJECTS, p.3 this LETTER.)

Transnuclear Corp. is new firm set up as a wholly owned subsidiary by Isotopes, Inc., Westwood, N.J. Initially the new company will manufacture nuclear instruments with transistor circuitry. Distribution of Transnuclear's products will be through Nuclear Industries, a recently established equipment marketing organization. Richard D. Janes, president of Isotopes, Inc., and Jack R. Carlin, who heads Nuclear Industries, have made an exchange of stock between the two companies. (Other BUSINESS NEWS, p.2 this LETTER.)

Sharply increased sales and earnings for 1960 have been reported by Vitro Minerals Company, which is jointly owned by Vitro Corp. of America and Rochester & Pittsburgh Coal Co. Revenues for 1960 were $2,150,878 as compared with $1,903,911 in 1959. Net income rose some 53% from $253,369 in 1959 to $542,363 in 1960. Revenues were from uranium mining in Wyoming and Utah. (Last year the company's exploration staff located an extensive area of a new type beryllium mineral deposit in the Topaz Mountain, Utah vicinity. The company said it expects to produce its first pilot beryllium compounds during 1961.) (Other FINANCIAL NEWS, p.2 this LETTER.)

Contract for charging devices for pen-type dosimeters has been received by Victoreen Instrument Co., Cleveland, from General Services Administration. Award, made on low bid basis, was in amount of $286,000 for the chargers, spare parts, etc. Chargers will be stockpiled by GSA under its civil defense program. (Other CONTRACT NEWS, p.3 this LETTER.)

Atomics International has been engaged by Baden-Wurttemberg Nuclear Power Plant Planning Association (KBWP) for preliminary design of 150,000 kw organic moderated nuclear power plant. The work is expected to take some 13 months and will be basis of decision on whether to proceed with construction. KBWP is recently formed group of some 13 power companies located in the Baden-Wurttemberg area of Germany. Overall planning for the project is being handled by Brown-Boveri, the Swiss engineering firm. (Other REACTOR NEWS, p.5 this LETTER.)

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ATOMIC ENERGY BUSINESS NEWS...

CRITERIA FOR STATE CONTROLS APPROVED: Criteria under which states may assume regulatory control of certain radioactive materials under an amendment to the Atomic Energy Act have been approved by the USAEC. USAEC Commissioner John S. Graham, in transmitting the criteria to the Governors of the states, noted that the USAEC is ready to immediately undertake negotiations to permit states to administer regulatory functions as set out in PL 86-373. This includes responsibility for rule-making, licensing, inspection, compliance and enforcement.

ZIRCONIUM COMPANY FORMED: Societe Industrielle du Zirconium is internationally owned company for the production of zirconium sponge recently established with Paris as headquarters by industrial firms in France, Italy and Germany. Holding stock in the new firm on an equal basis are: Degussa and Metallgesellschaft A.G. (Germany); Montecatini (Italy); and a French group headed by Pechiney. J. Baron will be general manager of the new firm. It is planned that during 1961 the company will do research work leading to pilot plant and eventual full-scale production for the nuclear and chemical industries.

TAXATION CONCESSIONS ON URANIUM CONTINUED IN AUSTRALIA: Current taxation concessions allowed by the Australian government on the mining and treating of uranium ores will be extended to June 30, 1968. Senator Spooner, Minister for National Development, said the decision was made in view of the problems which are likely to arise from the reduction in demand for uranium after the expiration of existing contracts. He noted that these concessions were to help the uranium industry make the necessary adjustments.

BRITISH URANIUM PURCHASE CONTRACTS OF CONCERN IN CANADA: To put at rest rumors that British contracts to purchase uranium from Canadian sources would be modified, government officials have discussed the question in the House and Commons. Involved are three U.K. contracts. Appearing before the House special committee on research, W. M. Gilchrist, president of Eldorado Mining & Refining, said the U.K. to date had carried out its contract obligations to the letter and there were no indications of a future default. Discussing the three U.K. contracts, he explained that the first was for 11 million pounds against which deliveries were now being made; the second was for 10 million pounds with deliveries scheduled for the 1962-63 period; and the third was for 24 million pounds to be delivered in the 1963-66 period. He said the average price paid under these British contracts was about $10.50 per pound. Outside the contracts, uranium was being sold to other countries at prices much below the U.K. buying price Mr. Gilchrist stated. The last sale of Canadian uranium to Japan was for 6½-tons at $4.37 per pound. (Research directed to new uses for uranium, now so much in over supply in Canada, has produced with uranium as alloying agent a steel of fine grain with improved fatigue characteristics and ability to stand up under shock, John Convey told a research committee of the Commons. Other efforts involve projects under direction of F. Forward, head of the Canadian Uranium Research Foundation, which is receiving some $250,000 annually from uranium producers for its work.)

HIGHER INCOME FROM URANIUM OPERATIONS: Increased income from uranium operations have been partially responsible for better earnings record of Kerr-McGee Oil Industries, according to Dean A. McGee, president. The company earned $8,400,000 or $3.04 per share in the six months to December 31, 1960. This was more than double the net of $3,500,000 or $1.30 per share earned in the like period a year earlier. Gross income rose from $79 million in the first half of fiscal 1960 to $90.8 in the second half. Mr. McGee said income from Kermac Nuclear Fuels Corp., now wholly-owned by Kerr-McGee should be substantially higher this fiscal year than last year when Kerr-McGee owned only 59% of it. Kermac has been operating under a $302 million purchase contract it holds from the USAEC. Petrotomics Co., 50% owned by Kerr-McGee, is now mining and stockpiling uranium ore preparatory to putting its new plant into operation. It holds contract for sale of uranium to USAEC from 1962 to 1966. Mr. McGee noted that uranium operations now account for some 37% of the company's income.

LOWER COSTS ON NUCLEAR POWER PLANTS PREDICTED: Large scale boiling water nuclear power plants can be built to compete with power stations using conventional fuels in some areas of the U.S., R. B. Richards of General Electric Co., told the American Power Conference in Chicago last week. Dr. Richards said a standard 500,000 kw dual-cycle boiling water reactor plant can be committed and built for startup in 1965 at a cost of about $175 per installed kw under favorable site conditions. He said initial power costs would be 6.56 mills per kwhr, which would decrease to 6.0 mills per kwhr with the third and future core loadings.

ATOMIC ENERGY CONTRACT NEWS:

NEW URANIUM PROCUREMENT CONTRACT SIGNED: New uranium concentrate purchase contract has been awarded by the USAEC to Trace Elements Corp., unit of Union Carbide Corp. The new agreement replaces a contract that would have expired March 31, 1962. It is effective as of January 1, 1961 and extends through December, 1966. Under its terms, the USAEC will purchase from Trace Elements uranium concentrates valued at $20,700,000. As of January 1, 1961 Trace elements will have sold 1,513,142 pounds of uranium concentrates valued at $14,828,000 since its first delivery was made to the Commission in December 1957. The company operates a uranium ore processing plant at Maybell, Colo., producing approximately 250-tons of uranium concentrates per year.

NEW PHYSICAL RESEARCH CONTRACTS LET: Some 12 new contracts for non-secret physical research have been awarded by the USAEC, with total value of $514,073. Grant of $120,000 was to University of Calif. for problems in theoretical nuclear physics, and $41,174 for particle systems studies; $37,802 to University of Delaware for investigations of radiolysis of liquids; $25,000 to Eastern Nazarene College for boron and silicon chemistry studies; $25,446 to University of Georgia for study of exchange of non-equilibrium systems; $44,377 to Hughes Aircraft Co. for dissociation probability studies in intense electrical fields; $98,087 to Mellon Institute for studies of alloys of the noble metals; $9,246 to New York University for examination of formation of butadiene from mixed butenes; $12,583 to University of Pittsburgh for studies of substituted aluminum alkyls; $11,266 to Stanford University for investigation of surface chemistry of inorganic oxides; $60,022 to Texas Nuclear Corp., for study of gamma rays produced by monoenergetic neutrons in several nuclei; and $29,070 to Vanderbilt University for studies in radiation chemistry by mass spectrometry.

FIRM LEADS IN DEFENSE DEPARTMENT NUCLEAR CONTRACTS: Top U.S. research and development contractor in the field of nuclear applications for the Department of Defense has been shown by a recent government audit to be Tracerlab, Inc., Waltham, Mass. The company has some $1,733,000 in prime research and development contracts. (Under an $11,000 contract the company will handle analysis of water samples collected by the Columbia University research vessel "Vema". The firm's radiochemical department will make determinations of presence of cesium-137 and strontium-90 in the water samples.)

FUSION RESEARCH CONTRACT AWARDED: Three year contract has been awarded the German government's Plasma Physics Institute by EURATOM for a cooperative program of controlled thermonuclear fusion research. The third to be made by EURATOM for this purpose, its cost is estimated at $7,500,000 of which EURATOM will contribute $2,500,000. A fourth such contract is under negotiation with the nuclear center at Juelich, Germany.

MEETINGS, COURSES, CONFERENCES...

SYMPOSIA: International symposium on aero-space nuclear propulsion is scheduled for Oct. 23-26, 1961 in Las Vegas, Nevada. It is being jointly sponsored by the IRE's professional group on nuclear science, the USAEC, and the NASA. (Papers are being requested for presentation at this meeting. Full information may be obtained from P. M. Uthe, Lawrence Radiation Laboratory, Box 808, Livermore, Calif.)

International Symposium on Criticality Control will be held May 2-5 under sponsorship of OEEC, Karlsruhe Nuclear Research Center, Germany. Full information may be obtained from OEEC, European Nuclear Energy Agency, 28 Blvd Suchet, Paris 16, France.

CONFERENCES: Conference on Property Changes in Reactor Materials and Radiation Damage is scheduled for May 29-June 2, 1961, in Bristol, England. Program, etc., may be obtained from A. T. Churchman, Berkeley Nuclear Laboratories, 7 St. Stephans Ave., Bristol 1, England.

Conference and exhibition on nuclear electronics is scheduled for May 13-21, 1961 in Belgrade, Yugoslavia. Details may be obtained from IAEA, 11 Kartnerring, Vienna 1, Austria.

MEETINGS: Sessions on nuclear engines and ionizing radiation effects on materials and equipment are scheduled for the Society of Automotive Engineers' national aeronautic meeting, April 4-7, 1961 in New York. There will also be a paper on nuclear submarine habitability. The nuclear engine program includes papers on: advantages of high-thrust nuclear-electric rockets; thermodynamics of gas-cooled reactor fuel elements; nuclear aircraft engine operating considerations; and nuclear ramjet control system design, performance, and environmental requirements. The radiation effects program will hear papers on: effects of nuclear radiation on electronic equipment and radiation effects on materials and equipment.

ATOMIC ENERGY PATENT NEWS...

PATENTS ISSUED March 14, 1961 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Nuclear power plant. Richard Tognoni, inventor. No. 2,975,118 assigned to Escher Wyss A. G., Zurich, Switzerland. (2) Method and apparatus for measuring wall thickness. Orlan G. Williams, inventor. No. 2,975,281 issued to inventor of record. (3) Low noise level ionization chamber. Philip E. Ohmart, inventor. No. 2,975,287 assigned to The Ohmart Corp., Cincinnati, Ohio.

PATENTS ISSUED March 14, 1961 to GOVERNMENT ORGANIZATIONS: (1) Method of fabrication of an irradiation transmutation capsule. Carroll M. Gordon, inventor. No. 2,975,113 assigned to USAEC. (2) Reactor. Samuel K. Allison, inventor. No. 2, 975,114 assigned to USAEC. (3) Bellows seal on reactor coolant tube. Eugene P. Wigner, Leo A. Ohlinger, Gale J. Young, inventors. No. 2,975,115 assigned to USAEC. (4) Neutronic reactor. Farrington Daniels, inventor. No. 2,975,116 assigned to USAEC. (5) Fast neutron reaction system. Walter H. Zinn, inventor. No. 2,975,117 assigned to USAEC. (6) Vertical rod drive mechanism. Clarence D. Emmons, inventor. No. 2,975,119 assigned to USAEC. (7) Radio ranging system. Robert W. Bogle, inventor. No. 2,975,414 assigned to USAEC.

PATENTS ISSUED March 21, 1961 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Process for irradiating high hydrocarbon coatings on metal to form polymeric coatings and resultant article. Alexander T. Wilson, inventor. No. 2,976,172 assigned to Standard Oil Co., Chicago, Ill. (2) Gamma compensated ionization chamber. Leslie E. Johnson, inventor. No. 2,976,418 assigned to inventor of record. (3) Dosimeter charging switches. Ole G. Landsverk, Zenonas Glodenis, Delbert L. Merriner, inventors. No. 2,976,420 assigned to Landsverk Electrometer Co., Glendale, Calif. (4) Radiation monitor. William A. Bayfield, inventor. No. 2,976,421 assigned to North American Philips Co., Inc., New York, N.Y. (5) Apparatus for irradiating chemical reactions. Max W. Hill, inventor. No. 2,976,422 assigned to Esso Research & Engineering Co. (6) Manipulating radioactive material. Robert J. Prest, inventor. No. 2,976,423 assigned to Technical Operations, Inc., Arlington, Mass. (7) Radioactive battery employing semiconductors. Paul Rappaport, Joseph J. Loferski, inventors. No. 2,976, 433 assigned to Radio Corp. of America. (8) Pressure responsive transducer for gases utilizing radioactive ionizing source. Dale F. Ridenour, inventor, No. 2,976,442 assigned to inventor of record. (9) Radiation detector. Roy P. Mazzagatti, inventor. No. 2,976,445 assigned to Texaco Inc.

PATENTS ISSUED March 21, 1961 to GOVERNMENT ORGANIZATIONS: (1) Steam generator. Harry O. Monson, inventor. No. 2,975,770 assigned to USAEC. (2) Charging device. Stanley L. Handforth, inventor. No. 2,975,912 assigned to USAEC. (3) Processing of cesium metal cyanides. Oscar H. Koski, inventor. No. 2,976,121 assigned to USAEC. (4) Neutronic reactor. John A. Wheeler, inventor. No. 2,976,227 assigned to USACE.

NEW BOOKS & OTHER PUBLICATIONS...

Power Reactor Technology. James K. Pickard, Frederick H. Warren, William W. Lowe, Stuart McLain, editors. Material from the 1958 Geneva Conference covering developments in reactor technology.-- D. Van Nostrand Co., Princeton, N.J. ($11.25)

Basic Principles of Fission Reactors. W. R. Harper. A basic text on the subject. 300 pages. ($7.50).....Atomic Energy Waste: Its Nature, Use & Disposal. E. Glueckauf, Atomic Energy Research Establishment, Harwell, editor. 432 pages. ($14.00).-- Interscience Publishers, Inc., New York 1.

Teach Yourself Atomic Physics. J. M. Valentine. Of value to the home student and others who desire an introduction to the subject. 188 pages.-- The MacMillan Co., New York 11. ($1.95)

Economics of Nuclear Power. Bibliography on the subject prepared by W. E. Bost, USAEC. 82 pages. No. TID-3089. ($2.00).....The Hydrogen Sulfide Dual-Temperature Process. Bibliography on economics of heavy water production by this method, prepared by J. M. Jacobs, USAEC. 21 pages. No. TID-3091. (75¢).....Radioisotopes in World Industry; Abstracts of Selected Foreign Literature. 141 pages. No. TID-6613. ($2.50)-- Office of Technical Services, Washington 25, D.C.

Index to the Ten Year Civilian Power Reactor Program (TID-8518 series). Covers the TID-8518 series which consists of 11 volumes published during 1960. -- Superintendent of Documents, Wash. 25, D.C. (15¢).

NOTES: Nuclear Reactors Built, Building or Planned in the U.S. as of Dec. 31, 1960, is 26 page booklet now in its 3rd revision. It is available free of charge from USAEC, P. O. Box 62, Oak Ridge, Tenn.

PRODUCTS, PROCESSES, INSTRUMENTS...

PRODUCT NEWS: USAEC program of giving discounts on radioisotopes made in its facilities for domestic research in biology, medicine and agriculture will be terminated July 1, 1961. This is in line with the Commission's policy of withdrawing from the supply of services and materials as adequate commercial sources become available. In addition, there had been complications caused by the entry into the market of various industrial and foreign suppliers. (During the past year about 240 discount certificates were issued universities, colleges, hospitals, state and private non-profit research institutions. While the discounts have been withdrawn, the Commission continues with its radioisotope equipment grant program for such organizations, encouraging the use of radioisotopes. In the life sciences alone, this program amounts to some $1 million annually.)

Some 2,500 kg of natural uranium fuel were shipped last fortnight by the USAEC to the Government of Turkey for a sub-critical assembly at the University of Ankara. Cost of the fuel, approximately $100,000, came from Mutual Security funds. Much of the instrumentation for the facility will be supplied by U.S. manufacturers.

Five gram melt of technetium-99, recently made by staff of Oak Ridge National Laboratory, will enable continued studies of the physical and metallurgical properties of the element. It is now processed from an aqueous technetium-99 concentrate produced from uranium metal reprocessing operations at the Commission's Paducah, Ky., operations. Recent developments in these processing operations have increased its availability. With increase in supply, price has been lowered from $1600 -$2800 per gram to about $100 per gram.

MANUFACTURERS NEWS: Radiation monitoring instrumentation for the PM-1 portable medium power plant will be supplied by Tracerlab, Inc.'s Richmond, Calif., plant under sub-contract given out by the Martin Co., Baltimore. Martin is building the plant for the USAEC and the Air Force. (PM-1 is a compact, air transportable nuclear power plant designed to generate 1,000 kw of electricity and to furnish 7,000 lbs. per hour of steam for heat and services at a remote military installation.) The radiation monitoring systems to be supplied will include two water monitoring systems; a 10 channel area monitoring system; an air particulate monitor; and an assortment of air samplers and laboratory equipment.

Major construction is scheduled to start April 1 in Japan on a General Electric nuclear power plant. GE's atomic power equipment department, San Jose, Calif., will design the plant's direct-cycle boiling water reactor and also fabricate the enriched uranium dioxide nuclear fuel. The plant will be built by General Electric Japan, Ltd., (wholly-owned GE subsidiary), for the Japan Atomic Energy Research Institute. It will be located at Tokai Mura, about 50-miles northeast of Tokyo, in a nuclear research center which now includes several research reactors. Ebasco Services, Inc., New York, are architect-engineers. The Nippon Atomic Industries Group, and Hitachi, Ltd., will supply certain components and services for the plant under GE sub-contracts.

MANUFACTURERS' LITERATURE: Description and properties of new Carborundum products for use under conditions of nuclear radiation, corrosion, etc., are described in brochure available from The Carborundum Co., Niagara Falls, N.Y.

Bulletin of the Ohmart Corp., Cincinnati, Ohio, describes nuclear thickness gauges produced by the company.

New four page booklet on nuclear test loops is offered by Omega Engineering division of Adson Industries, Inc., 116-55 Queens Blvd., Forest Hills, N.Y. The brochure describes the Omega Model 100, a packaged nuclear test loop for use in nuclear engineering courses.

Atomlight for March, 1961 (issue No. 17) includes two papers which were presented at symposium on Advances in Tracer Methodology held in October, 1960. The issue may be obtained on request to the company in Boston, Mass.

Sincerely,

The Staff
ATOMIC ENERGY NEWSLETTER

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